PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/004,873

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (Currently amended) An image analyzing method ~~comprising the steps of~~ including:

dropping ~~spot-like~~ spots of ~~dropping a specific~~ a binding substance onto a substrate to form a plurality of spots,

photoelectrically detecting all of the thus formed spots to produce template data,

producing a template for defining regions of interest to be quantified based on the thus produced template data, and

~~effecting~~ performing quantitative image analysis based on the template.

2.   (Currently amended) An image analyzing method in accordance with Claim 1, ~~which comprises the steps of spot-like dropping~~ wherein:

dropping a binding substance onto a substrate further includes dropping a fluorescent dye for producing template data capable of being efficiently-stimulated by a stimulating ray having a different wavelength from that of a stimulating ray capable of efficiently—stimulating a fluorescent dye labeling a target substance derived from a living organism ~~onto the substrate together with the specific binding substance to form a plurality of spots,~~ and

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irradiating the plurality of spots with a stimulating ray having a wavelength capable of

efficiently-stimulating the fluorescent dye for producing template data, thereby stimulating the

fluorescent dye for producing template data, wherein the irradiating of the plurality of spots

occurs prior to photoelectrically detecting the plurality of spots to produce template data

~~photoelectrically detecting fluorescence emission released from the fluorescent dye for~~

~~producing template data, producing the template data, producing a template for defining regions~~

~~of interest to be quantified based on the thus produced template data and effecting quantitative~~

~~analysis based on the template.~~

3.   (Currently amended) An image analyzing method in accordance with Claim 2,

~~which comprises the steps of~~ wherein:

~~spot-like dropping the~~ dropping a binding substance onto a substrate further includes

dropping a fluorescent dye labeling a target substance derived from a living organism, said

fluorescent dye labeling a target substance derived from a living organism capable of being

stimulated by a stimulating ray having a different wavelength than that of a stimulating ray

capable of stimulating the fluorescent dye for producing template data ~~onto the substrate together~~

~~with the specific binding substance to form the plurality of spots~~, said method further

comprising:

hybridizing the substance derived from a living organism and labeled with a fluorescent

dye with the specific binding substance is performed prior to irradiating the plurality of spots,

~~irradiating~~ the step of irradiating the plurality of spots further includes irradiating the

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plurality of spots with a first stimulating ray having a wavelength capable of efficiently

stimulating the fluorescent dye for producing template data, thereby stimulating the fluorescent

dye for producing template data,

photoelectrically detecting fluorescence emissions includes a first detection of fluorescent

emissions, said first detection detecting fluorescent emissions released from the fluorescent dye

for producing template data, producing the template data, producingafter which the template is

produced for defining regions of interest to be quantified based on the thus-produced template

data,

irradiating the wherein irradiating the plurality of spots further includes irradiating the

plurality of spots with a second stimulating ray capable of efficiently stimulating the fluorescent

dye to stimulate the fluorescent dye labeling the substance derived from a living organism, said

second stimulating ray occurring after said first stimulating ray, and

photoelectrically detecting wherein photoelectrically detecting fluorescence emissions

includes a second detection of flourescent emmissions, said second detection detecting

fluorescent emissions released from the fluorescent dye labeling the substance derived from a

living organism to produce image data, and effecting quantitative analysis based on the template.

4.   (Currently amended) An image analyzing method in accordance with Claim 2,

which comprises the steps of spot-like dropping said method further comprising:

the fluorescent dye for producing template data onto the substrate together with the

specific binding substance to form the plurality of spots,

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hybridizing ~~the~~ a substance derived from a living organism and labeled with a fluorescent

dye with the specific binding substance prior to irradiating the plurality of spots,

~~irradiating~~ wherein irradiating the plurality of spots further includes irradiating the

plurality of spots with a first stimulating ray having a wavelength capable of efficiently

stimulating the fluorescent dye labeling the substance derived from a living organism to

stimulate the fluorescent dye,

wherein photoelectrically detecting fluorescence emissions includes a first detection of

fluorescent emissions, said first detection detecting fluorescent emissions released from the

fluorescent dye labeling the substance derived from a living organism to produce image data,

~~irradiating the~~ wherein irradiating the plurality of spots further includes irradiating the

plurality of spots with a second stimulating ray having a wavelength capable of efficiently

stimulating the fluorescent dye for producing template data, thereby stimulating the fluorescent

dye for producing template data, wherein said second stimulating ray occurs after said first

stimulating ray, and

photoelectrically detecting fluorescence emissions includes a second detection of

fluorescent emissions, said second detection detecting fluorescent emissions released from the

fluorescent dye for producing template data, ~~producing a template data, producing a template for~~

~~defining regions of interest to be quantified based on the thus produced template data, and~~

~~effecting quantitative analysis based on the template.~~

5. (Currently amended) An image analyzing method in accordance with Claim 2,

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~~which comprises the steps of spot-like dropping the~~ wherein:

~~fluorescent dye for producing template data onto the substrate together with the specific~~

~~binding substance to form the plurality of spots,~~

irradiating the plurality of spots further includes irradiating the plurality of spots with a

first stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

for producing template data, thereby stimulating the fluorescent dye for producing template data,

photoelectrically detecting fluorescence emissions includes a first detection of emissions,

said first detection of emission detecting fluorescent emissions released from the fluorescent dye

for producing template data, ~~producing the template data, producing a~~ after which the template is

produced for defining regions of interest to be quantified based on the ~~thus produced~~ template

data,

hybridizing is then performed wherein ~~the~~ a substance derived from a living organism

and labeled with a fluorescent dye is hybridized with the specific binding substance forming the

plurality of spots on the substrate,

irradiating the plurality of spots further includes irradiating the plurality of spots with a

second stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

labeling the substance derived from a living organism to stimulate the fluorescent dye, said

second stimulating ray occurring after said first stimulating ray, and

photoelectrically detecting fluorescence emissions includes a second detection of

fluorescent emissions, said second detection detecting fluorescent emissions released from the

fluorescent dye labeling the substance derived from a living organism to produce image data.

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~~defining regions of interest to be quantified in the image data based on the template and effecting~~

~~quantitative analysis based on the template.~~

6.   (Currently amended) An image analyzing method in accordance with Claim 2<u>,</u>

wherein<u>:</u>

the fluorescent dye for producing template data is contained in a polymer<u>,</u> and <u>wherein</u>

~~which comprises the steps of causing~~ the polymer ~~to~~ contain<u>s</u> the specific binding

substance<u>,</u> ~~spot-like dropping the polymer onto the substrate to form a plurality of spots,~~

~~irradiating the plurality of spots with a stimulating ray having a wavelength capable of efficiently~~

~~stimulating the fluorescent dye for producing template data, thereby stimulating the fluorescent~~

~~dye for producing template data, photoelectrically detecting fluorescence emission released from~~

~~the fluorescent dye for producing template data, producing the template data, producing the~~

~~template for defining regions of interest to be quantified based on the thus produced template~~

~~data, and effecting quantitative analysis based on the template.~~

7.   (Currently amended) An image analyzing method in accordance with Claim 6

~~wherein the fluorescent dye for producing template data is contained in the polymer and which~~

~~comprises the steps of causing the polymer to contain the specific binding substance,~~ <u>wherein the</u>

<u>method further includes:</u>

~~spot-like~~ <u>dropping the specific binding substance further includes</u> dropping the polymer

onto the substrate to form the plurality of spots,

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hybridizing the-a substance derived from a living organism and labeled with a fluorescent

dye with the specific binding substance, and wherein

irradiating the plurality of spots further includes irradiating the plurality of spots with a

first stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

for producing template data, thereby stimulating the fluorescent dye for producing template data,

photoelectrically detecting fluorescence emissions includes a first detection of fluorescent

emissions, said first detection detecting emissions released from the fluorescent dye for

producing template data, producing the template data, after which the template is produced

producing a template for defining regions of interest to be quantified based on the thus-produced

template data,

irradiating the plurality of spots further includes irradiating the plurality of spots with a

second stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

labeling the substance derived from a living organism to stimulate the fluorescent dye, wherein

the second stimulating ray occurs after said first stimulating ray, and

photoelectrically detecting fluorescence emissions includes a second detection of

fluorescent emissions, said second detection detecting fluorescent emissions released from the

fluorescent dye labeling the substance derived from a living organism to produce image data, and

effecting quantitative analysis based on the template.

8.   (Currently amended) An image analyzing method in accordance with Claim 6

wherein the fluorescent dye for producing template data is contained in the polymer and which

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~~comprises the steps of causing the polymer to contain the specific binding substance,~~ wherein the

method further includes:

~~spot-like~~ dropping the specific binding substance further includes dropping the polymer

onto the substrate to form the plurality of spots,

hybridizing ~~the~~ a substance derived from a living organism and labeled with a fluorescent

dye with the specific binding substance, and wherein

irradiating the plurality of spots further includes irradiating the plurality of spots with a

first stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

labeling the substance derived from a living organism, thereby stimulating the fluorescent dye

labeling the substance derived from a living organism,

photoelectrically detecting fluorescence emissions includes a first detection of fluorescent

emissions, said first detection detecting emissions released from the fluorescent dye labeling the

substance derived from a living organism to produce image data,

irradiating the plurality of spots further includes irradiating the plurality of spots with a

second stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye

for producing template data, thereby stimulating the fluorescent dye for producing template data,

wherein the second stimulating ray occurs after the first stimulating ray, and

photoelectrically detecting fluorescence ~~emission~~ emissions includes a second detection

of fluorescent emissions, said second detection detecting fluorescent emissions released from the

fluorescent dye for producing template data~~, producing the template data, producing a template~~

~~for defining regions of interest to be quantified based on the thus produced template data, and~~

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~~effecting quantitative analysis based on the template.~~

9.   (Currently amended) An image analyzing method in accordance with Claim 1, ~~which comprises the steps of~~ wherein:

prior to the dropping spots of a binding substance, ~~dropping~~ a solution containing the fluorescent dye for producing template data is dropped onto ~~the~~ a substrate using a spotter to form ~~the~~ a first plurality of spots,

~~irradiating~~ the first plurality of spots are irradiated with a stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye for producing template data, thereby stimulating the fluorescent dye for producing template data,

photoelectrically detecting fluorescence emissions includes a first detection of fluorescent emissions, said first detection detecting emissions released from the fluorescent dye are photoelectically detected for producing template data, after which ~~producing~~ the template data is produced, ~~producing a template for defining regions of interest to be quantified based on the thus produced template data,~~ and wherein

dropping the specific binding substance includes dropping a solution containing the specific binding substance using the spotter onto another substrate to form a second plurality of spots,

~~hybridizing the~~ a substance derived from a living organism and labeled with a fluorescent dye is hybridized with the specific binding substance,

~~irradiating~~ the second plurality of spots are irradiated with a stimulating ray having a

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wavelength capable of efficiently-stimulating the fluorescent dye labeling the substance derived

from a living organism, thereby stimulating the fluorescent dye, <u>wherein the second stimulating</u>

<u>ray occurs after the first stimulating ray, and</u>

photoelectrically detecting fluorescence emissions <u>includes a second detection of</u>

<u>fluorescent emissions, said second detection detecting emissions</u> released from the fluorescent

dye <u>labeling the substance derived from a living organism</u> to produce image data, ~~defining~~

~~regions of interest to be quantified in the image data, and effecting quantitative analysis~~.

10.   (Currently amended) An image analyzing method in accordance with Claim 1<u>,</u>

<u>wherein:</u>

~~which comprises the steps of spot-like dropping the specific binding substance onto the~~

~~substrate to form the plurality of spots;~~

~~irradiating~~ the plurality of spots <u>is irradiated</u> with light, <u>and</u> ~~photoelectrically detecting~~

<u>the</u> light <u>is</u> scattered by the plurality of spots to produce <u>the</u> template data, ~~and producing~~

~~a template for defining regions of interest to be quantified based on the thus produced template~~

~~data~~.

11.   (Currently amended) An image analyzing method in accordance with Claim 10<u>,</u>

<u>wherein</u> ~~which comprises~~ the steps of spot-like dropping the specific binding substance onto the~~

~~substrate to form the plurality of spots, hybridizing the~~

<u>a</u> substance derived from a living organism and labeled with a fluorescent dye <u>is</u>

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hybridized with the specific binding substance and with a fluorescent dye for producing template data,

~~irradiating~~ the plurality of spots is irradiated with a first stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye for producing template data,

photoelectrically detecting further includes photoelectrically detecting the light scattered by the plurality of spots to produce template data, producing a template for defining regions of interest to be quantified based on the thus produced template data,

~~irradiating~~ the plurality of spots are irradiated with a second stimulating ray having a wavelength capable of efficiently stimulating the fluorescent dye labeling the substance derived from a living organism, thereby stimulating the fluorescent dye labeling the substance derived from a living organism, wherein the second stimulating ray occurs after the first stimulating ray, and

photoelectrical~~ly~~ detection~~ing~~ further includes detecting fluorescence emissions released from the fluorescent dye ~~are photoelectically detected~~ labeling the substance derived from a living organism to produce image data, defining the regions of interest to be quantified in the image data based on the template~~, and effecting quantitative analysis~~.

12.   (Currently amended) An image analyzing method in accordance with Claim 10, wherein: ~~which comprises the steps of spot-like dropping the specific binding substance onto the substrate to form the plurality of spots,~~

~~hybridizing the~~a substance derived from a living organism and labeled with a fluorescent

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dye is hybridized with the specific binding substance,

~~irradiating~~ the plurality of spots are irradiated with a first stimulating ray having a

wavelength capable of efficiently stimulating the fluorescent dye for labeling the substance

derived from a living organism, thereby stimulating the fluorescent dye,

photoelectrically detecting fluorescence emissions includes a first detection, said first

detection detecting fluorescent emissions released from the fluorescent dye ~~are photoelectrically~~

~~detected~~ for labeling the substance derived from a living organism to produce image data,

~~irradiating~~ the plurality of spots are irradiated with a second stimulating ray having a

wavelength capable of efficiently stimulating the fluorescent dye for producing template data,

wherein the second stimulating ray occurs after the first stimulating ray, and

~~photoelectrically detecting~~ light scattered by the plurality of spots stimulated by the

second stimulating ray is photoelectrically detected in a second detection, said second detection

producing ~~to produce~~ template data, ~~producing a~~ and a template based on said template data for

defining regions of interest to be quantified based on the thus produced template data and,

defining regions of interest to be quantified in the image data based on the template, ~~and~~

~~effecting~~ performing quantitative ~~image~~ analysis.

Claims 13-20 (cancelled).

21.   (New) The image analyzing method of claim 1, wherein the quantitative image

analysis includes reading image data in a two-dimensional map.

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22. (New) The image analyzing method of claim 21, further wherein reading image data includes reading the size and position of fluorescently detected emissions of a fluorescent dye used to label a substance derived from a living organism.

23. (New) The image analyzing method of claim 22, further wherein the image data is compared with the template to determine regions of interest.

24. (New) The image analyzing method of claim 23, further wherein the regions of interest are superimposed with the image data.

25. (New) The image analyzing method of claim 6, wherein the polymer is of a high viscosity.

26. (New) The method of claim 1, further comprising setting a region of interest based on the template data, and performing quantitative image analysis based on the regions of interest based on the template data.